NON-PROVISIONAL PATENT APPLICATION

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TITLE: **CONSTRUCTION SAFETY BARRIER**

CROSS REFERENCE TO RELATED APPLICATION

This application is based upon provisional application 60/413,324 filed on 09/24/2002, the priority of which is claimed.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates generally to vertical debris and safety barriers which are employed during the construction of high rise office buildings or the like. More particularly, the present invention relates generally to debris and safety barriers which are installed to prevent workers, debris and other objects from falling off the floor slab of a structure under construction.

2. Description of the Prior Art

Various federal, state and local laws and regulations, including those of the Federal Occupational Safety and Health Administration, require that safety barriers be employed during the construction of high rise office buildings and like structures. The principal purpose of such safety barriers is to prevent workers from accidentally falling off the edge of the floor slab. The safety barrier may also function to prevent debris, tools, materials and other objects from accidentally falling off a floor slab during construction. The pertinent safety standards commonly require that during construction, a rope, cable or hand rail be suspended above the height of the floor slab so as to extend vertically at the perimeter of the slab. Typically, the cable is suspended approximately 42 inches above each floor slab. A

second cable is also typically suspended midway between the floor slab and the 42 inch cable. A rigid toe board of five inches or greater width may also typically be rigidly secured along the floor slab at or near the perimeter to prevent debris, tools, materials and other objects from being accidentally kicked or dislodged off the floor slab.

U.S. Patent 4,815,562 illustrates a prior art debris barrier for a high rise building under construction with a woven flexible mesh netting. The top of the netting is clipped to a safety cable so as to suspend vertically a portion of the netting. The netting is anchored to the floor slab by driving fasteners such as nails through a lower anchor strip. Disadvantages of the debris barrier of the '562 patent include having to provide a safety cable for the top of the barrier and nails for the bottom.

U.S. Patent 4,920,925 illustrates a prior art safety netting for buildings under construction. The netting includes a unitary web to form a net-like lattice and a continuous bendable toeboard portion. An edge strip of the toeboard portion is secured to a horizontal toeboard strip, and the lattice portion is attached to pillars or other vertical supports at the construction site at about 4.5 foot intervals. Disadvantages of the safety net of the '929 patent include having to nail the toeboard portion to the slab floor and having to provide vertical standards at about 4.5 foot intervals.

U.S. Patent 5,197,239 illustrates a prior art containment system with a pair of vertically spaced webs with a cord laced through grommets to the webs for adjusting the effective dimensions of the containment panels at the work site.

Other prior art patents such as U.S. Patent 6,092,792 and 6,149,135 feature mesh barriers attached to vertical poles for insertion into the soil for use in fencing sports playing fields, crowd control or for landscaping purposes.

3. **Identification of Objects of the Invention**

A primary object of the invention is to provide a safety barrier for high rise-construction sites of a flexible web material that can be easily and quickly installed at the edge of an open slab and quickly uninstalled and stored for future use.

Another object of the invention is to provide a safety barrier that can be wrapped into a roll and stored when not in use.

Another object of the invention is to provide a safety barrier that can be stretched between vertical standards and secured thereto for installation.

Another object of the invention is to provide a safety barrier that can be wrapped around support posts of the building.

Another object of the invention is to provide one or more advertising banners on a safety barrier for a high rise construction site.

Another object of the invention is to provide a method of doing business where a safety barrier is provided for a construction site by a provider of the safety barrier, and the provider sells advertising space on the safety barrier to an advertiser during the time that the barrier is in place while the building is being constructed.

SUMMARY OF THE INVENTION

The objects identified above along with other features and advantages are incorporated in a web of fabric material that is several yards long and can be stretched or extended between vertical posts and secured thereto. Mesh can be provided over the web. The vertical posts are secured to the slab of an open floor of a building being constructed. The vertical ends of the web are secured to the posts by cam buckles.

A method of doing business is provided by applying advertising banners to safety barriers used during construction of a high rise building and selling advertising space on the barriers during the time that the barriers are in place. The method includes the step of

supplying the barrier, such as where a manufacturer or a barrier supply company provides safety barriers to a contractor of a building, for free or reduced cost in return for authority and privilege to install advertising banners on the safety barriers. The barrier supply company sells advertising space on the barriers to advertisers. The barriers, owned or controlled by the barrier supply company, can be stored and reused many times, and new advertising banners applied.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention is described in detail hereinafter on the basis of the embodiments represented schematically in the accompanying figures, in which:

Figure 1 illustrates the flexible safety barrier from an interior view on a floor of a building under construction with the barrier wrapped around a vertical column of the building;

Figure 2 illustrates the flexible safety barrier viewed from outside the building with the safety barrier wrapped around a column of the building and carrying an advertising banner;

Figure 3 illustrate ends of adjacent barrier sections, both of which are secured to a vertical standard by cam buckles; and

Figure 4 is a cross section taken along lines 4-4 of Figure 3.

DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

Figure 1 illustrates the safety and debris barrier 10 of the invention as seen from an interior floor 12 of a high-rise building under construction with barrier 10 passing on the outward side of stanchion 14. Barrier 10 consists of one or more sections 10A, 10B preferably several yards in length (e.g. 7 yards) and about five (5) feet in height each, but they can be manufactured in any length and height. The barrier has five horizontal support strips 20 and a number of vertical support strips 22 spaced at roughly two (2) foot intervals.

Horizontal support strips 20 and vertical support strips 22 are fastened to form a rectangular web 24.

Barrier sections 10A, 10B are coupled together to create a complete barrier 10. Vertical standards 26 or posts anchored to floor 12 are used to couple barrier sections 10A, 10B together and provide immobility and stiffness for barrier 10. Horizontal support strips 20 are looped around vertical standard 26 and made fast by 800 pound test one inch cam buckles 28. Alternatively, barrier 10 may be secured to any suitable strong and immobile object. Figures 3 and 4 shows the coupling of the support strips 20 to the vertical standards with the can buckles 28.

Although barrier 10 may be made from varying materials to provide tensile strengths ranging from 500 pounds to 40,000 pounds, the standard construction barrier is fabricated from one inch ultra-violet (UV) stabilized, weather-resistant, and flame-retardant polyester webbing with 3,000 pound tensile strength. This webbing has a ten year service life under direct UV exposure and will not rot, shrink, or expand under any weather conditions. Made from this webbing, a standard seven yard barrier section weights only 4.5 pounds yet provides 400 pounds of litter control barrier per square foot. A fine mesh (around one-half inch) fabric 30 is secured to the horizontal support strips 20 and the vertical support strips 22. Mesh 30 prevents small items from passing through the web 24.

Each vertical standard 26 is made from 1 inch by 2 inch eleven (11) gauge rectangular steel tubing 32 welded to a 4 inch by 6 inch angle iron base 34 and mounted to a typical concrete slab floor 12 with four 3/8 inch by 4 inch concrete drive anchors 36.

Barrier 10 is manufactured to meet or exceed all applicable OSHA, ANSI and CFR standards.

Barrier 10 of this invention has significant advantages over prior art barriers and the common practice of building barriers from two inch by four inch planks. First, except for the

concrete anchors 36, it is completely reusable from project to project and results in reduced jobsite waste. Second, barrier 10 is easy for a single man to install. Because it is lightweight, no heavy lifting is required. Other than setting the concrete anchors 36, no tools are required. The versatile barrier 10 can fit any sized opening and be removed and reinstalled in less than five minutes, which provides easy access to any portion of floor 12 with minimal downtime. Third, a barrier section is easily rolled about a vertical standard 26 for easy storage and transport. It is knot-free and therefore not subject to snagging.

Figure 2 illustrates barrier 10 as seen external to a building under construction, with corner stanchion 14 visible. Barrier 10, which may be manufactured in a variety of colors, provides a clean and enhanced appearance of the construction project.

Returning now to Figure 2, an advertising banner 40 is attached to barrier 10. A method of doing business is provided by applying advertising banners to safety barriers used during construction of a high rise building and selling advertising space on the barriers during the time that the barriers are in place. The method includes the step of a safety barrier company providing the barrier to the contractor for free or for a low cost in return for authority and privilege to install advertising banners on the safety barriers. The barriers, owned or controlled by a safety barrier company, can be stored and reused many times, and new advertising banners applied. Although Figure 2 shows only one banner on a barrier 10, the method of the invention provides multiple banners by which a person on the ground or in another building could see the advertising message or messages. The banners can be repeated all around a construction floor.

While preferred embodiments of the invention have been illustrated in detail, it is apparent that modifications and adaptations of the preferred embodiments will occur to those skilled in the art. It is to be expressly understood that such modifications and adaptations are in the spirit and scope of the invention as set forth in the following claims: